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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/553,624

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EXAMINER

HANNON, CHRISTIAN A

ART UNIT

PAPER NUMBER

2618

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/553,624	<b>Applicant(s)</b> TAKAHATA ET AL.	
	<b>Examiner</b> CHRISTIAN A. HANNON	<b>Art Unit</b> 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-6 and 8-11 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6,8,9 and 11 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5 and 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This action is response to applicant's response to the clarification filed on 11/17/2008. In light of the clarification the amendment filed by applicant on 7/21/2008 is retroactively deemed non-compliant; this action shall replace the Final Action mailed 10/27/2008 which was in response to the non-compliant amendment filed 7/21/2008. Claims 1-2, 4-6 & 8-11 are now pending in the present application. **This action is made final.**

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 4-5 & 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bank et al (US 7,151,837), hereinafter Bank, in view of Wei et al (US 6,289,101), hereinafter Wei.

Regarding claim 1, Bank teaches a flat panel speaker unit comprising within a frame a transparent single diaphragm, acoustic radiator, for outputting sound (Column 1, Lines 37-41; Bank), a vibration generating part, transducer, arranged on the peripheral portion of the diaphragm to directly drive the diaphragm for vibration (Column 1, Lines 52-67; Column 2, Lines 1-4; Bank), and a display device disposed inward of the diaphragm, for displaying information (Figure 2; Column 6, Lines 37-40; Bank) the

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diaphragm and the display device being stacked with a gap there between so that an image on the display device can be viewed through the diaphragm (Figure 2; Column 6, Lines 37-40; Bank), and the diaphragm being fixed to the frame by mounting a peripheral portion of the diaphragm onto the frame (Column 1, Lines 49-51; Column 6, Lines 40-42; Bank) and the vibration generating part could include a coil and magnet (Column 2, Lines 1-4; Bank). However Bank fails to explicitly teach that either the magnet or the coil is mounted on the diaphragm and the other is mounted on the frame. Wei teaches a known transducer consisting of a coil and a magnet where each component is connected to the frame, the yoke, or the diaphragm, vibrating diaphragm (Column 2, Lines 32-52; Wei) wherein locating nubs (also taught by Bank Column 7, Lines 21-27, Figure 4), protruding downwardly are formed on the peripheral portion of the diaphragm, and the coils are fitted onto the locating nubs on a lower face of the diaphragm (Figures 2 & 4, Items 2 & 3; Wei); it is noted by the examiner that the coil is attached to the diaphragm of the raised portions of what has been interpreted as the lower face of the diaphragm as shown in the figures. Therefore it would be obvious to one of ordinary skill in the art to combine the teachings of Bank with those of Wei in order to provide a coil/magnet type transducer in cases when a piezoelectric transducer was not wanted as a design choice, in order to lose 99% of the input energy to heat, and thereby lowering the efficiency.

Regarding claim 2, Bank and Wei teach claim 1, wherein a plurality of vibration generating parts are furnished adjacent a peripheral edge of the display device (Column 10, Lines 21-30; Bank).

Regarding claim 4, Bank and Wei teach claim 1, wherein the vibration generating part is arranged outward of the display device an electric wire or flexible circuit board extending outward of the frame is connected to the display device or the vibration generating part and a through hole is provided in the frame between the display device and the vibration generating part (Figure 2; Column 6, Lines 32-34; Bank). The examiner asserts official notice that a mobile phone as taught by Bank obviously requires a circuit board housing the telephony functions of the mobile phone.

Regarding claim 5, Bank and Wei teach claim 4, wherein the electric wire or flexible circuit board is drawn outside the frame through the hole (Figure 2; Column 6, Lines 32-34; Bank). The examiner asserts official notice that a mobile phone as taught by Bank obviously requires a circuit board housing the telephony functions of the mobile phone.

Regarding claim 10, Bank and Wei teach claim 1, wherein an electronic device comprises the flat panel speaker (Column 6, Lines 32-34; Bank).

### ***Allowable Subject Matter***

3. Claims 6, 8-9 & 11 are allowed.

Regarding claim 6, Bank teaches a transparent single diaphragm for outputting sound and a vibration generating part including a coil and magnet for vibrating the diaphragm along with a display device disposed inward of the diaphragm for displaying information (Column 1, Lines 52-67; Column 2, Lines 1-4; Bank). However Bank fails to teach that either one of the coil and magnet is mounted on a peripheral portion of the

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diaphragm, a central portion of the diaphragm which fully covers an underlying display is thicker than the peripheral portion of the diaphragm to which the vibration generating part is mounted, and the coil of the vibration generating part is coiled more laterally than vertically and causes the diaphragm to vibrate by receiving magnetic flux lines, generating magnetic flux lines emitted from the magnet, that are diagonal or parallel with respect to the diaphragm.

Claims 8-9 & 11 are allowed as they depend from claim 6.

### ***Response to Arguments***

4. Applicant's arguments filed 7/21/2008 have been fully considered but they are not persuasive.

In response to the applicant's arguments that Bank does not teach locating nubs the examiner respectfully disagrees. The examiner has interpreted the diaphragm item 67 of the Bank reference to comprise locating nubs where a "nub" is interpreted compliant with Webster's dictionary to mean "a small irregularly shaped piece". In figure 4, Bank teaches implicitly a small irregularly shaped piece serving as a nub where the diaphragm 67 meets the supports of 172 where the downward direction is held to be the direction towards 172 from the perspective of item 67.

In response to the applicant's arguments that Wei fails to teach a magnet or coil can be connected to a diaphragm, the examiner respectfully disagrees. Figure 2, of Wei explicitly shows that item 3 and item 2, coil and diaphragm respectively are connected.

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Further support of this is found at column 2 of Wei at lines 32-33 where it states that *the coil is installed on the diaphragm*. Therefore applicant's argument is moot.

In response to the applicant's arguments on combining the Bank & Wei references the examiner respectfully disagrees. First in regards to Bank, it is true that piezoelectronics are more efficient, and the examiner's reason to combine was, to make such more inefficient. This implies that if a manufacturer was looking to cut costs as is inherent in industry it would make sense for a designer to look to the Wei art to have a cheaper alternative to the state of the art. Second the Wei reference as characterized by the applicant is misleading. The applicant has seemingly intentionally taken quotes out of context in attempting to characterize the Wei reference as teaching away from coils and magnets. The 'complicated' and 'not convenient' arrangements in Wei were those of the prior art, not those of the teachings of Wei.

In response to the applicant's arguments that the intended range of frequencies of Bank and Wei are some how relevant the examiner respectfully disagrees. There is no limitation in the claim necessitating a particular range and since some overlap of frequency exists between Bank and Wei as they both cover the range of human speech, the applicant's arguments are overcome.

### **Conclusion**

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTIAN A. HANNON whose telephone number is (571)272-7385. The examiner can normally be reached on Mon. - Fri. 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. A. H./  
Examiner, Art Unit 2618

/Edward Urban/  
Supervisory Patent Examiner, Art Unit 2618